

# U.S. Department of Energy

## Albuquerque Operations Office

# SUPPLEMENTAL DIRECTIVE

AL 5610.12
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DATE: August 17, 1995

SUBJECT: PACKAGING AND OFFSITE TRANSPORTATION OF NUCLEAR COMPONENTS, AND  
SPECIAL ASSEMBLIES ASSOCIATED WITH THE NUCLEAR EXPLOSIVE AND WEAPON  
SAFETY PROGRAM

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### 1. PURPOSE

This is a Supplemental Directive (SD) to the Department of Energy (DOE) Order 5610.12, PACKAGING AND OFFSITE TRANSPORTATION OF NUCLEAR COMPONENTS, AND SPECIAL ASSEMBLIES ASSOCIATED WITH THE NUCLEAR EXPLOSIVES AND WEAPON SAFETY PROGRAM, dated July 26, 1994. This SD does not change any requirements contained in the DOE Order, but does establish DOE/Albuquerque Operations Office (AL) requirements for the implementation of the DOE Order by, or under the authority granted by the DOE Defense Programs. The SD establishes standards of performance, and assigns authorities and responsibilities for the design, production, test, evaluation, procurement, documentation, independent review, certification, maintenance, quality assurance (QA), and use of packages; and the safe offsite transportation of nuclear components, special assemblies, and other materials designated by the Manager, DOE/AL conducted in the interest of national security or in support of mutual defense treaty obligations and agreements.

### 2. CANCELLATION

THIS SD REPLACES the DOE/AL SD 5610.1, PACKAGING AND TRANSPORTATION OF COMPONENTS AND SPECIAL ASSEMBLIES ASSOCIATED WITH THE NUCLEAR WEAPONS PROGRAM, October 1, 1992.

### 3. SCOPE

Except for the exclusions in paragraph 5 of DOE Order 5610.12, this SD applies to those involved in activities cited in Section 1, "Purpose," above for the nuclear weapons program: DOE departmental elements; DOE operating contractors and their subcontractors; and Lawrence Livermore National Laboratory, Los Alamos National Laboratory, and Sandia National Laboratories.

### 4. APPLICABILITY

This SD applies to the packaging and offsite transportation of nuclear components, special assemblies, and other designated materials made by, or under the direction or supervision of the Office of National Defense Programs, AL. It also applies to management of all activities supporting the nuclear weapons program cited in Section 1, "Purpose," above.

5. DOE ORDER 5610.12 IMPLEMENTATION GUIDANCE FOR REGULATORY COMPLIANCE

See the NESD Packaging and Transportation Guide, Revision O of May 1995, for compliance standards. Figure 1, the "DOE Defense Programs Organization Chart" on the following page, displays the key personnel supporting the necessary programs and activities for compliance with the Order. The provisions of this SD must be fully implemented 12 months after issuance.

6. REFERENCES

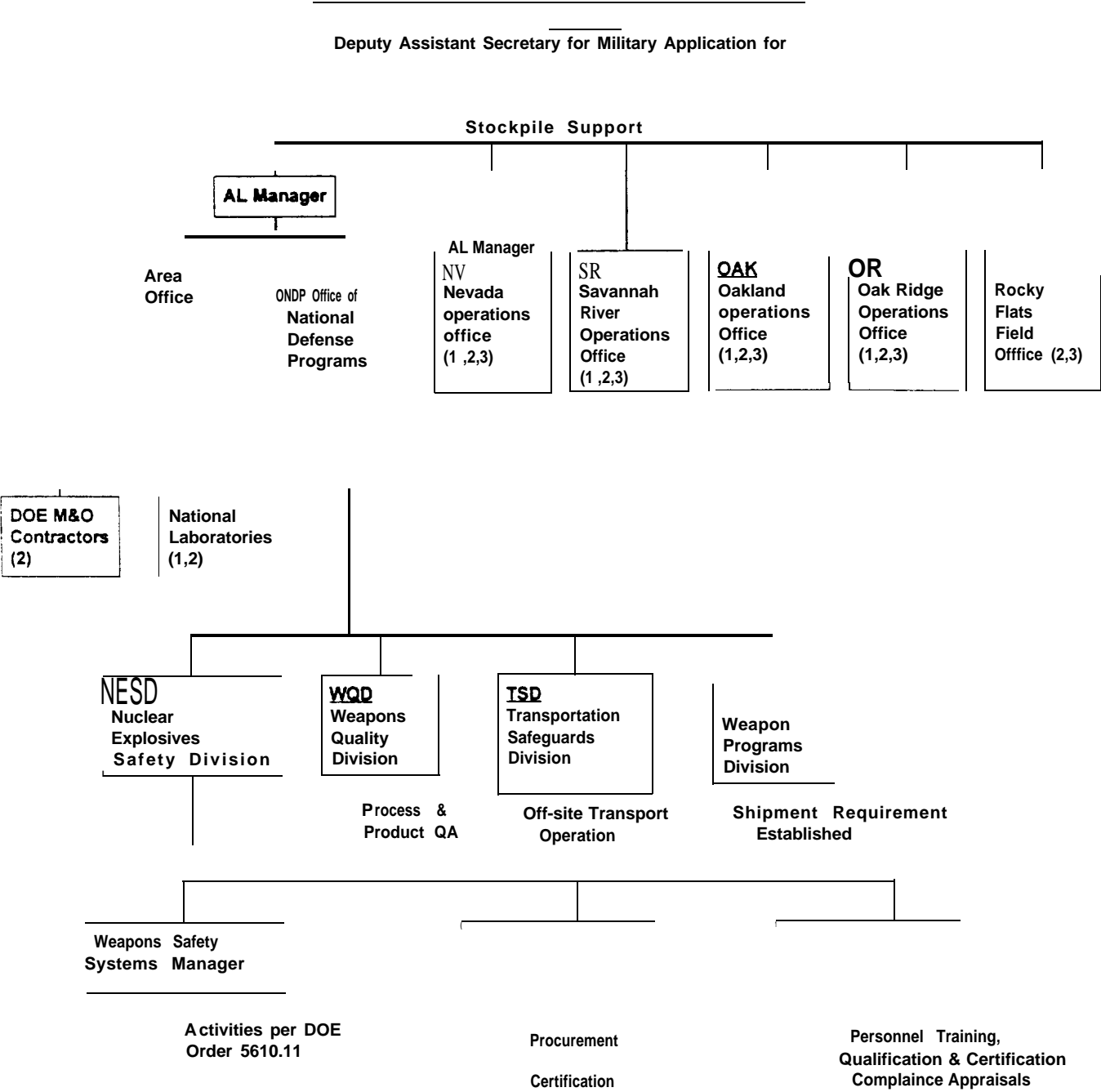
Pertinent references for this SD are provided in Attachment No. 1 of DOE Order 5610.12, and are supplemented with the references listed below.

- a. Title 10 CFR, Energy, Part 830 "Nuclear Safety Management. " It establishes the DOE Order 5700.6C requirements for on-site facilities for the preparation of a site Quality Assurance program Plan (QAPP).
- b. US DOE, Office of National Defense Programs AL, Desire Guide for Packaging and Offsite Transportation of Nuclear Components, Special Assemblies, and Radioactive Materials Associated with the Nuclear Explosives and Weapons Safety Program, SG 100-Rev. O, November 1994. This establishes applicable standards for defense programs packaging.
- c. US DOE/AL, Nuclear Explosive Safety Division (NESD), NESD Packaging and Transportation Guide Revision O, May 1995.
- d. US DOE, Office of Nuclear Energy, DOE Order 5480.19, Conduct of Operations (COO) Requirement for DOE Facilities, July 9, 1990. This document provides direction for implementation of improved uniformity and quality of operations. Its guidance is intended to facilitate a COO characterized by a consistent and audible set of requirements, standards, and responsibilities for safe and reliable operations.
- e. US DOE/AL, DOE Order AL 1120, Organization, Authorities, and Functions, January 13, 1995. This order details the delegation of the Manager, AL responsibilities to the Office of National Defense Programs (ONDP).
- f. US DOE/AL, NESD, Appraisal Guide, January 1995.
- g. ASME, Quality Assurance Program Requirements for Nuclear Facilities (NQA-1), 1989. The weapons defense program organizations subscribe to the specifications of this document as promulgated in 10 CFR 71, Subpart H, for quality planning and satisfying quality assurance requirements in the conduct of their operations and facilities.
- h. DOE/AL Quality Criteria (QC-1), revision 7, dated April 20, 1993.

7. DEFINITIONS

Pertinent definitions for this SD are provided in Attachment No. 1 of DOE Order 5610.12.

Figured. DOE Defense Programs Organization



NOTES:

- Packaging Acquisition:**  
Design, Production, Procurement Test and Evaluation, Documentation of Compliance, Risk Assessment, Records Maintenance.

**Packaging Certification:**  
Confirmatory Review, Safety Appraisal and Risk Verification Evaluation and Documentation, Records Maintenance.
- Package Inventory:**  
Package Availability, Maintenance, Quality Assurance, Loading/Unloading, On-Site Movement, Tie-Down in SST, Leak Tightness Verification, Making and labeling, SNM Management Records Maintenance.
- Shipment Request:**  
Supped of Defense Program Operations.

8. **POLICY**

In accordance with the policy promulgated in DOE Order 5610.12, nuclear components, special assemblies, and other materials designated by the Manager, AL shall be packaged, and transported in a DOE-selected manner that provides protection to public health and safety, and the environment. Safety requirements and concerns take precedence over programmatic interests. The safety afforded shall be of the highest level practicable and shall achieve a similar or higher level of protection compared to that provided by federally specified package, packaging, and transportation requirements for other hazardous, radioactive, and explosive materials. Requirements for package design, production, procurement, use and transportation shall be written and implemented as approved by DOE/AL.

Offsite transportation operations shall be conducted through a systematic process consistent with Conduct of Operations principles, and quality considerations whereby: all aspects of the concept of operations shall be thoroughly considered; attendant risks shall be identified, analyzed, and evaluated in matters of public health and safety, and environmental protection; and informed decisions shall be made, and approval authorization at the DOE/AL level prior to shipment campaigns.

9. **OBJECTIVE**

The objective of this SD is to promulgate DOE policy stated in DOE Order 5610.12, and the associated responsibilities, authorities, quality assurance requirements, and operations such that all measures reasonably practicable for the safe packaging and offsite transport of nuclear components, and special assemblies associated with the nuclear weapons program are implemented.

10. **RESPONSIBILITIES AND AUTHORITIES**

See the NESD Packaging and Transportation Guide for: (1) ***Compliance*** to standards, including quality assurance activity requirements and planning specifications modeled after NQA- 1 (See Section 6, 'References'), and (2) *Suggestions* for program development and implementation.

See Figure 2, 'DOE Order 5610.12 Requirements (Section 12) vs. Supplement 5610.12 Listing of Responsible Person/Group,' on the following page. The requirements cited in DOE Order 5610.12 are the bases for the designated responsibilities and authorities below.

a. **The Manager, DOE/AL**

- (1) Considers and authorizes, on a case-by-case basis, all DOE/AL air shipments of plutonium, in accordance with 10 CFR 871.
- (2) Notifies the Deputy Assistant Secretary for Military Application and Stockpile Support (DASMASS) to the Assistant Secretary for Defense Programs (DP-1) of any deviations from DOE Order 5610.12.
- (3) Forwards to DASMASS any approved requests for one-time emergency shipments.
- (4) Ensures that line management organizations (e.g., area offices, national laboratories, management and operating contractors and ONDP divisions) are aware of their responsibilities for the package design, production, and procurement for, and shipment of nuclear components, special assemblies, and other designated materials in accordance with DOE orders.

**b.     The Assistant Manager, ONDP**

- (1)     For the Manager, DOE/AL, approves all DOE Offsite Transportation Certificates and Offsite Transportation Authorizations of nuclear components, special assemblies, and other designated materials.
- (2)     Promulgates the Headquarters (HQ) policy concerning the package design, production, test, evaluation, procurement, documentation, independent review, certification, appraisals, and use for, and offsite transportation of components, special assemblies, and other materials associated with the nuclear weapons program.
- (3)     Directs support, as required by the ONDP divisions, to accomplish the responsibilities of this SD.
- (4)     Manages the day-to-day operations of the packaging and offsite transportation program.
- (5)     Ensures that negotiations for the “United States/United Kingdom Memorandum of Arrangement for the Certification of Packaging and Transportation of Special Assemblies and Weapon Components” are concluded and updated as appropriate.

**Figure 2**

**DOE ORDER 5610.12 REQUIREMENTS (SECTION 12) VS.  
SUPPLEMENT 5610.12 LISTING OF RESPONSIBLE PERSON/ GROUP**

<b>5610.12 Requirement</b>	<b>Manager, AL</b>	<b>Operations 'offices</b>	<b>Area offices</b>	<b>DOE Contractors</b>	<b>National Laboratories</b>
i. (1)	X	X	X	X	X
(2)	x	x	x	x	x
(3)	x	x	x	x	x
(4)	X	X	X	X	X
(5)	x	x	x	x	x
(6)	x	x	x	x	x
(7)	x	x	x	x	x
(8)	x	x	x	x	x
(9)	x	x	x	x	x
(10)	X	X	X	X	X
(11)	X	X	X	X	X
j. (1)	X				
(2)	x		x	x	
(3)	x				
(4)	x				
(5)	x				
(6)	x	x			
(7)	x	x	x	x	x
(8) a,b	X				
(9)	x				
(10)	X				
(11)	X	X			
(12)	X	X	X	X	X
(13)	X				

NOTE: Refers to the DOE Operations Offices of Savannah River (SR), Nevada (NV), Oak Ridge (OR), and Oakland (OAK), as well as the Rocky Flats Field Office (RFFO).

c. **The Director, NESD**

Reviews, provides recommendations, and/or concurs with requests for continuing deviations from DOE Order 5610.12 to the Manager, DOE/AL, for action, and assures the activities cited for each subordinate staff position title below are accomplished.

**Defense Program Packaging Manager**

- (1) Establishes the functional responsibilities and authorities of a Procurement Engineer (PE), a Certification Engineer (CE), and coordinates with the Safety Appraisal Manager such that each person is independent of the other in job performance.
- (2) Ensures the development and implementation of the **NESD Packaging and Transportation Guide**.
- (3) Designates the chairperson of each Transportation Safety Review Panel (TSRP) in accordance with this SD.
- (4) Ensures that NESD personnel performance of procurement activities, including contractor vendors and suppliers, is in accordance with federal standards and QAPP requirements through appraisal of internal DOE facilities and processes, and external vendor and supplier facilities and processes.
- (5) Prepares the NESD resource requirements.
- (6) Coordinates future procurements, and schedules package recertification.
- (7) Maintains the DOE/AL Weapon Component and Special Assembly Packaging Database.
- (8) Maintains the Offsite Transportation Certificate and Authorization Directory.
- (9) Maintains authorization records of air shipments of plutonium and notifies DP-1 of such authorization as required by 10 CFR 871.3.
- (10) Provides a copy of the Safety Analysis Report of Packaging (SARP), the Safety Evaluation Report (SER), and the DOE Offsite Transportation Certificate (OTC)/Offsite Transportation Authorization (OTA) to the ONDP for all authorized users .
- (11) Develops and implements procedures and requirements for recertification of Type B packaging.

**PE**

- (12) Establishes and manages all programmatic activities involving packaging acquisition. These activities include; research, design, development, testing, evaluation, procurement, requirements development, logistics, independent review, documentation, SARP preparation, quality assurance, and TSRAs by DOE and DOE contractors.
- (13) Maintains program management control over packaging and repackaging production line activities. These activities include: acquisition of facilities; development and procurement of process equipment; establishment of production line procedures;

establishment of environment, safety, and health procedures; development of requirements; manpower and resource management; storage and staging of containers; logistics; activity scheduling; and laboratory and plant coordination.

- (14) Coordinates all packaging certification requests, and performs a preliminary review of documentation for completeness and assurance that all safety aspects of DOE Order 5610.12 have been addressed prior to submittal of the package for certification review.
- (15) Ensures that procurement activities are conducted in compliance with applicable laws, regulations, orders, and requirements.
- (16) Ensures that all DOE contractors requiring packaging to ship nuclear components, special assemblies, and other associated materials have developed and submitted a SARP to NESD at least 40 weeks in advance of the projected date for use of the packaging.
- (17) Maintains a file of approved package designs and the cm-e.spending safety analyses, and the DOE/AL Weapon Component and Special Assembly Packaging Database for information about containers and transportation systems used for packaging and transportation of nuclear components, special assemblies, and other associated material.

CE

- (18) Chairs the review of Safety Analysis Reports for Packaging and TSRA and advises the Assistant Manager, ONDP regarding compliance with requirements of DOE Order 5610.12.
- (19) Reviews and provides recommendation for expeditious shipment requests to the Manager, DOE/AL for deviations from the provisions of DOE Order 5610.12.
- (20) Prepares OTCs and OTAs - including the associated SER which documents the results of the SARP review for the OTC, and the TSRA review for the OTA - for all NESD-approved packagings/shipments used for the shipment of nuclear components, special assemblies, and other designated material associated with the nuclear weapons program.
- (21) Assesses all aspects of Offsite Transportation Authorizations for the shipment of nuclear components, special assemblies, and other associated material to ensure it is consistent with the associated Defense Programs Transportation Risk Assessment for minimizing risk.
- (22) Participates in walk-throughs and surveillances in support of DOE Order 5610.12. (See Reference 6.c.)
- (23) Provides technical information regarding package performance in the event a package has been involved in an accident.

Safety Appraisal Manager

- (24) With guidance from the Defense programs NESD Packaging and Transportation Guide, identifies and provide-s (on assessment of the) training requirements for qualification, and certification, as necessary, of all DOE and DOE contractors supporting the DP packaging programs.



- (25) Provides a DOE/AL NESD Appraisal Guide for the conduct of order compliance surety appraisals for the weapons programs. This appraisal guide applies to DOE contractors performing packaging and/or transportation operations.
- (26) At least every 24 months, conducts packaging and transportation safety appraisals of DOE contractors, national Laboratories, area offices, and operations offices in accordance with the NESD Appraisal Guide.
- (27) Provides a tracking system for corrective actions generated as a result of the surety appraisal and QA activities in accordance with the NESD Appraisal Guide.
- (28) Conducts follow-up activity at sites to verify closure of corrective actions in accordance with the NESD Appraisal Guide.

d. The Director, WQD

- (1) Develops and submits requests for deviations to DOE Order 5610.12 to ONDP and NESD for review and concurrence, and to the Manager, DOE/AL for approval.
- (2) Submits requests for packages, shipments, and expeditious shipments to NESD for review and concurrence, and to the Assistant Manager, DOE/AL, ONDP for approval.
- (3) schedules and conducts annual QA appraisals for the DOE contractor packaging program to ensure compliance with DOE/AL QC-1.
- (4) Reviews the QA program section of each TSRA and SARP and documents the results of these reviews.
- (5) Provides guidance to Transportation Safeguards Division (TSD), DOE contractors, and national laboratories in the development **and** implementation of a QAPP that meets the requirements of DOE/AL Quality Policy, QC-1.
- (6) Provide product acceptance in behalf of the DOE for all DP related packaging and handling equipment (H-gear) including recertified items.

e. The Director, Weapon Programs Division

- (1) Develops and submits requests for deviations to DOE Order 5610.12 to the Manager, DOE/AL, ONDP after review and concurrence by NESD.
- (2) Submits requests for packages, shipments, and expeditious shipments to ONDP after review and concurrence by NESD, and then, to the Manager, DOE/AL for approval.
- (3) Directs that a TSRA be performed for Offsite Transportation Authorization of nuclear components, special assemblies, and other designated materials that do not meet the requirements of DOE Order 5610.12 be prepared.
- (4) Provides a schedule and priority for the defense program packaging needs and identification of procurement quantities.

f. The Director, TSD

- (1) Transports nuclear components, special assemblies, and other designated materials in compliance with DOE Order 5610.12.
- (2) Ensures compliance with the restrictions specified in DOE OTC/OTA for nuclear components, special assemblies, and other designated materials moved in the DOE TSS.
- (3) Establishes a safety training program for TSD couriers and escorts to assure they are knowledgeable and aware of hazardous materials packaging and transportation requirements.
- (4) Coordinates the establishment of written safety and emergency procedures to be followed by TSD couriers who have custody of nuclear components, special assemblies, and other designated materials.
- (5) Ensures that couriers are provided operating and emergency procedures, and training whose requirements and criteria are consistent with the TSD QAPP.
- (6) Ensures that nuclear components, special assembly, and associated other material packages are properly secured” and supported in accordance with approved tie-down procedures.
- (7) Conducts an annual safety self-appraisal of the DOE TSS.
- (8) Provides a safety advisor to the TSRP, and participates in offsite transportation appraisals, as requested by NESD.
- (9) Provides copies of all occurrence reports related to the transportation of nuclear components, special assemblies, and other designated materials to NESD.
- (10) Maintains a DOE/AL-approved TSAR and SER for the transportation operations that supports the movement of nuclear components, special assemblies, and other designated materials.
- (11) Develops and implements a DOE/AL TSD QA Program that meets the requirements of DOE Order 5700.6C.
- (12) Ensure that personnel that handle or have custody of Categories I and II Special Nuclear Material meet the appropriate security program requirements.
- (13) Maintains tie-down configurations for secure transport using the DOE TSS, and submits requests for tie-down procedure revision to the NESD CE for concurrence.
- (14) Ensure that all shipments, including expeditious shipments outside the formal OTA process, comply with the applicable provisions of this DOE Order 5610.12, and the regulatory references that govern its implementation, i.e., 49 CFR, or 10 CFR 71.
- (15) Authorizes the use of any DOE-approved vehicle other than those required under an OTC, or OTA.

g. **Branch Chief, Emergency Management Branch**

**Ensures** that DOE/AL has a program plan and procedures to provide emergency support to NESD in the event of an accident.

h. **Operations Office Managers**

Operations office managers that request support for weapons defense program activities from DOE/AL NESD shall be required to satisfy the responsibilities listed below.

- (1) Develops and submits requests for deviations to DOE Order 5610.12 to the Manager, DOE/AL, via NESD for review and concurrence.
- (2) Submits requests for packages, shipments, and expeditious shipments to the Manager, DOE/AL, via NESD, for review and concurrence.
- (3) Ensures that nuclear components, special assemblies, and other designated material transported outside of their DOE-controlled sites are packaged and properly secured in accordance with DOE Order 5610.12.
- (4) Submits requests for approval for special packaging that has not been the subject of an approved SARP, and requires expeditious handling to the NESD for the safe packaging of nuclear components, special assemblies, and other designated materials.
- (5) Certifies compliance to DOE Order 5610.12 of all offsite transportation shipments originating under their authorities.
- ( 6 ) Provide qualified individuals to serve as TSRP members or advisors as requested by the NESD.
- (7) Maintain the records of appraisals and corrective actions pertaining to associated, accountable DOE contractor and subcontractors.
- (8) Ensure the annual management appraisals of contractors' performance using the NESD Appraisal Guide, is conducted.
- (9) Assist the Director, NESD, as requested, in appraising other operations offices, DOE contractors, or AL area offices.
- (10) Maintains a current copy of all approved QAPP documents, operating procedures, and emergency plans and procedures that support the functions and activities detailed in the NESD Packaging and Transportation Guide.
- (11) Develops and implements a Package and Transportation Program Plan in accordance with the NESD Packaging and Transportation Guide, including all section topics of the Manual as section topics in the Package and Transportation program Plan.
- (12) Controls and maintains all Package and Transportation Program documents in accordance with the NESD Packaging and Transportation Guide.

i. **Area Office Managers**

Area office managers that request support for weapons defense program activities from DOE/AL NESD shall be required to satisfy the responsibilities listed above for operations office managers.

j. **DOE Contractors**

- (1) Develops and submits requests for deviations to DOE Order 5610.12 to NESD for review and concurrence, and through NESD, to the Manager, DOE/AL for approval.
- (2) Submits requests for SARPs, TSRAs, and expeditious shipments to the NESD for review and concurrence, and through NESD, to the Manager, DOE/AL for approval.
- (3) Provides the TSRA and transportation request to NESD through coordination with the respective area office/operations office.
- (4) **Maintains a** current copy of all approved OTCs, OTAs, SARPs, QAPPs, and the supporting documentation for each, used in DOE-contractor operations for off-site transportation.
- (5) Ensures the performance of activities for packaging design, the packaging's associated production and acceptance processes, and its procurement, maintenance, disposition, and use are compliant with the 10 CFR 71.
- (6) Ensures shipments using other government agency' certifications of compliance, e.g., Radioactive and Special Material Transportation Approval Principle (RAMTAP), Nuclear Regulatory Commission, etc., are coordinated through DOE/AL NESD.
- (7) Maintains shipping files of all OTC/OTA uses.
- (8) Conducts an annual safety management appraisal of packaging and transportation of nuclear components and special assemblies in accordance with the NESD Appraisal Guide.
- (9) Maintains an occurrence reporting and tracking system.
- (10) Provides a qualified TSRP member, as requested by NESD.
- (11) Prepares, uses, and maintains site-specific written procedures for the management and handling of packaging) and the required preparation for off-site transportation of nuclear components, special assemblies, and other designated materials.
- (12) Develops and implements a Package and Transportation Program Plan in accordance with the NESD Packaging and Transportation Guide, including all section topics of the Manual as section topics in the Package and Transportation Program Plan.
- (13) Controls and maintains all Package and Transportation Program documents cited above in accordance with the NESD Packaging and Transportation Guide.
- (14) Ensures the inventory and control of DOE Nuclear Component and Special Assembly.

- (15) Prepares and delivers a monthly status report to NESD describing the previous month's activities for incorporation into a monthly report to DASMSS and DOE/HQ. The status report highlights the accomplishments and status of programmatic activities for each site.
- (16) Develop and implement a QAPP that meets the requirements of 10 CFR 71, subpart H for packaging certification and the requirements of DOE/AL QC- 1 for product acceptance, and 10 CFR 830 for facilities and records, as well as technical standards administrative controls, procedures, and instructions in compliance with the NESD Packaging and Transportation Guide.
- (17) Submit all DP related packaging and handling equipment (H-gear), including recertified items, to the DOE/WQD (or their representative) for acceptance.

**k. National Laboratories**

**Comply with the requirements** established by the responsibilities listed in 10 J. above for DOE contractors.

- (1) When requested by NESD, provides a package and/or a risk assessment for offsite transportation authorization of components, special assemblies, and other designated materials that do not meet the requirements of DOE Order 5610.12.
- (2) When requested by NESD, provides qualified experts to participate in the design, production and procurement of packaging.
- (3) When requested by NESD, provides independent qualified experts to participate in SARP or TSRA review.
- (4) Ensures that all personnel associated preparing a package for certification review, including DOE contractors, comply with safety aspects of DOE Order 5610.12 prior to submittal of the package for the review.
- (5) Participates in DOE Order 5610.12 packaging and transportation appraisals when requested by NESD.

Bruce G. Twining  
Manager

KIRTLAND AREA OFFICE

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